CLAIMS

What is claimed is:

1. A method for video navigation comprising:

a) forming a window in a video sequence having dimension corresponding to a first location within said dimension in response to a first request from a first client that is remotely located;

b) generating a first window video sequence corresponding to said window at said first location, said first window video sequence having a first compression prediction following a compression format;

c) navigating said window from said first location to a second location in said dimension in response to a second request from said first client; and

d) generating a second window video sequence corresponding to said window at said second location, said second window video sequence having a second compression prediction following said compression format.

2. The method for video navigation as described in Claim 1, wherein b) comprises:

b1) extracting from a compressed version of said video sequence prediction information for said window video sequence that independently complies with said compression format for said window; and

b2) substituting intra coded information that is coded from an uncompressed version of said video sequence

in said compression format to complete said window video sequence.

3. The method for video navigation as described in Claim 1, wherein d) comprises:

d1) extracting from said first window video sequence prediction information based on blocks contained within said window at said second location for said second compression prediction; and

d2) substituting intra coded information that is coded from an uncompressed version of said video sequence in said compression format to complete said second window video sequence.

4. The method for video navigation as described in Claim 1, wherein d) comprises:

referencing a reference block in said second window video sequence, said reference block associated with an adjusted motion vector by adding a navigation step vector to an associated motion vector.

5. The method for video navigation as described in Claim 4, wherein d) further comprises:

referencing said reference block if said reference block is within a new motion vector search range corresponding to said window at said second location.

6. The method for video navigation as described in Claim 1, wherein said compression format is a Motion Picture Expert Group (MPEG) compression format.

7. The method for video navigation as described in Claim 1, further comprising:

sizing said first window within said dimension in response to said first request; and

locating said first window at said first location in response to said first request.

8. The method for video navigation as described in Claim 1, further comprising:

transmitting said second window video sequence to said first client for viewing.

9. The method for video navigation as described in Claim 1, further comprising:

e) contemporaneously forming a second window corresponding to a third location within said dimension in response to a third request from a second client that is remotely located;

f) contemporaneously generating a third window video sequence corresponding to said second window at said third location, said third window video sequence having a third compression prediction following said compression format; and

g) contemporaneously transmitting said second and third window video sequences to said first and second clients respectively for viewing.

10. The method for video navigation as described in Claim 1, further comprising:

e) contemporaneously forming a second window corresponding to a third location within said dimension in response to a third request from a second client;

f) contemporaneously navigating said second window from said third location to a fourth location in said dimension in response to a fourth request from said second client; and

g) contemporaneously generating a fourth window video sequence corresponding to said second window at said fourth location, said fourth window video sequence having a fourth compression prediction following said compression format.

h) contemporaneously transmitting said second and fourth window video sequences to said first and second clients for viewing.

11. A method for video navigation comprising:

a) creating a plurality of windows within a video sequence having dimension in response to window requests from corresponding clients in a plurality of clients that are remotely located, each of said plurality of windows associated with one of said plurality of clients;

b) for each of said plurality of windows, generating a window video sequence from said video sequence following

a compression format corresponding to client defined size and location information within said dimension;

c) independently navigating each of said plurality of windows throughout said dimension in response to navigation requests from said corresponding clients; and

d) for each of said plurality of windows that is navigated to a new location, generating a new window video sequence following said compression format.

12. The method for video navigation as described in Claim 11, further comprising:

for each of said plurality of windows, contemporaneously transmitting said window video sequence; and

for each of said plurality of windows that is navigated to a new location, contemporaneously transmitting said new window video sequence.

13. The method for video navigation as described in Claim 11, wherein b) comprises:

b1) extracting from a compressed version of said video sequence prediction information that independently complies with said compression format for each of said plurality of windows; and

b2) substituting intra coded information that is coded from an uncompressed version of said video sequence in said compression format to complete said window video sequence for each of said plurality of windows.

14. The method for video navigation as described in Claim 13, wherein b1) further comprises:

incorporating independently coded information from said compressed version in said window video sequence.

15. The method for video navigation as described in Claim 11, wherein d) comprises:

d1) cropping said window video sequence for prediction information that independently complies with said compression format for each of said plurality of windows that is navigated; and

d2) substituting intra coded information that is coded from an uncompressed version of said video sequence in said compression format to complete said window video sequence for each of said plurality of windows that is navigated.

16. The method for video navigation as described in Claim 15, wherein d1) further comprises:

incorporating independently coded information from said compressed version in said new window video sequence.

17. The method for video navigation as described in Claim 11, wherein d) comprises:

referencing a reference block in said window video sequence, said reference block associated with an adjusted motion vector by adding a navigation step vector to an associated motion vector.

18. The method for video navigation as described in Claim 11, further comprising:

contemporaneously, for each of said plurality of windows, transmitting said window video sequence to one of a plurality of remote clients.

19. The method for video navigation as described in Claim 11, further comprising:

contemporaneously, for each of said plurality of windows that is navigated, transmitting said window video sequence to one of said plurality of remote clients.

20. A communication network for presenting video, comprising:

a video source for providing a live video sequence having dimension;

a capture module coupled to said video source for capturing pixel information for said video sequence, forming a captured video sequence;

a compression module coupled to said video source for compressing and encoding said video sequence in a compression format, forming a compressed video sequence; and

a server coupled to said capture module and said compression module for receiving requests, from a plurality of client devices, for a plurality of portions of said video sequence, each of said plurality of portions corresponding to one of a plurality of cropped windows in said video sequence, and contemporaneously transmitting

each of said plurality of portions to one of a plurality of client devices.

21. The communication network for presenting video as described in Claim 20, wherein said server further comprises:

a pixel picture buffer adaptively coupled to said capture module for receiving said captured video sequence;

a coded picture buffer adaptively coupled to said compression module for receiving said compressed video sequence; and

a video cropping engine adaptively coupled to said pixel picture buffer and said coded picture buffer for generating each of said plurality of portions of said video sequence in said compression format by combining data from said compressed video sequence and said captured video sequence.

22. The communication network for presenting video as described in Claim 20, wherein said server further comprises:

a video cropping engine for receiving said requests for a plurality of portions of said video sequence, said requests including navigation control requests, each of which move one of said plurality of cropped windows from one location in said dimension to another location in said dimension.

23. The communication network for presenting video as described in Claim 21, wherein said video cropping engine utilizes data from said compressed video sequence whenever possible in generating each of said plurality of portions, and substitutes data from said captured video sequence when necessary.

24. The communication network for presenting video as described in Claim 20, wherein said video source is a stationary camera.

25. A computer system comprising:

a processor;

a computer readable memory coupled to said processor and containing program instructions that, when executed, implement a method for video navigation comprising:

a) forming a window in a video sequence having dimension corresponding to a first location within said dimension in response to a first request from a first client that is remotely located;

b) generating a first window video sequence corresponding to said window at said first location, said first window video sequence having a first compression prediction following a compression format;

c) navigating said window from said first location to a second location in said dimension in response to a second request from said first client; and

d) generating a second window video sequence corresponding to said window at said second location, said

second window video sequence having a second compression prediction following said compression format.

26. The computer system as described in Claim 25, wherein b) in said method for video navigation comprises:

b1) extracting from a compressed version of said video sequence prediction information for said window video sequence that independently complies with said compression format for said window; and

b2) substituting intra coded information that is coded from an uncompressed version of said video sequence in said compression format to complete said window video sequence.

27. The computer system as described in Claim 25, wherein d) in said method for video navigation comprises:

d1) extracting from said first window video sequence prediction information based on blocks contained within said window at said second location for said second compression prediction; and

d2) substituting intra coded information that is coded from an uncompressed version of said video sequence in said compression format to complete said second window video sequence.

28. The computer system as described in Claim 25, wherein d) in said method for video navigation comprises:

referencing a reference block in said second window video sequence, said reference block associated with an

adjusted motion vector by adding a navigation step vector to an associated motion vector.

29. The computer system as described in Claim 28, wherein d) in said method for video navigation further comprises:

referencing said reference block if said reference block is within a new motion vector search range corresponding to said window at said second location.

30. The computer system as described in Claim 25, wherein said compression format is a Motión Picture Expert Group (MPEG) compression format.

31. The computer system as described in Claim 25, wherein said method for video navigation further comprises:

sizing said first window within said dimension in response to said first request; and

locating said first window at said first location in response to said first request.

32. The computer system as described in Claim 25, wherein said method for video navigation further comprises:

transmitting said second window video sequence to said first client for viewing.

33. The computer system as described in Claim 25, wherein said method for video navigation further comprises:

e) contemporaneously forming a second window corresponding to a third location within said dimension in response to a third request from a second client that is remotely located;

f) contemporaneously generating a third window video sequence corresponding to said second window at said third location, said third window video sequence having a third compression prediction following said compression format; and

g) contemporaneously transmitting said second and third window video sequences to said first and second clients respectively for viewing.

34. The computer system as described in Claim 25, wherein said method for video navigation further comprises:

e) contemporaneously forming a second window corresponding to a third location within said dimension in response to a third request from a second client;

f) contemporaneously navigating said second window from said third location to a fourth location in said dimension in response to a fourth request from said second client; and

g) contemporaneously generating a fourth window video sequence corresponding to said second window at said fourth location, said fourth window video sequence having a fourth compression prediction following said compression format.

h) contemporaneously transmitting said second and fourth window video sequences to said first and second clients for viewing.